

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 29

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte LUKE D. BOND, CHARLES C. MILLS, PHILIP WHITING and
ANTHONY H. MEHTA

Appeal No. 1996-0864
Application No. 08/181,695¹

HEARD: October 6, 1999

Before JOHN D. SMITH, WALTZ and SPIEGEL, Administrative Patent Judges.

WALTZ, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 1 through 19, 21 through 23, 25 through 27, and the examiner's refusal to allow claims 24 and 28 as amended subsequent to the final rejection (see the amendment dated June 22, 1995, Paper No. 16, entered as

¹ Application for patent filed January 14, 1994.

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per the Advisory Action dated June 28, 1995, Paper No. 15).²
Claims 1-19 and 21-28 are the only claims remaining in this
application.

According to appellants, the invention is directed to a
method of oxidizing organic material in an aqueous stream
containing one or more inorganic salts, inorganic salt
precursors, or mixtures thereof, comprising oxidizing the
organic material at a temperature at least equal to the
critical temperature of the aqueous stream (e.g., 320 to
500EC., specification, page 10, line 14) to form a single
homogenous fluid phase and at a pressure sufficiently high
(e.g., 4,500 to 25,000 psi, specification, sentence bridging
pages 4-5) to solubilize the inorganic salts in the single
homogenous phase (Brief, page 3).

Claim 1 is illustrative of the subject matter on appeal
and is reproduced below:

² As noted in the Advisory Action dated June 28, 1995,
Paper No. 15, the amendment dated June 22, 1995, Paper No. 16,
overcomes the final rejection of claims 24 and 28 under the
first paragraph of 35 U.S.C. § 112 for lack of "adequate
support" (see the final rejection dated Feb. 1, 1995, Paper
No. 9, page 2).

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1. A method for oxidizing organic material in an aqueous stream containing one or more inorganic salts, inorganic salt precursors or mixtures thereof substantially insoluble in the aqueous stream under supercritical conditions near the critical point comprising oxidizing said organic material in the presence of an oxidant in a reactor at a temperature at least equal to the critical temperature of the aqueous stream so as to form a single homogeneous fluid phase and at a pressure sufficiently high to solubilize said inorganic salts in said single homogeneous phase.

The examiner has relied upon the following reference as evidence of obviousness:

Modell	4,543,190	Sep. 24, 1985
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This merits panel of the Board cites and discusses the following reference:

McHugh et al. (McHugh), *Supercritical Fluid Extraction*, pp. 1-7, Butterworth Publishers, 1986 (a copy is attached to this decision).

Claims 1-19 and 21-28 stand rejected under 35 U.S.C. § 103 as unpatentable over Modell (Answer, page 3, citing the final rejection in Paper No. 9). We reverse this rejection for essentially the reasons set forth in appellants' Brief and Reply Brief. We add the following comments for emphasis and completeness.

OPINION

The examiner states that Modell discloses a method of oxidizing organic material in an aqueous stream "substantially as claimed" and the claims only differ from Modell "by reciting that the organic material is oxidized at a specific pressure which is sufficiently high to solubilize said inorganic salts in the single homogenous phase." (Final Rejection, page 3). The examiner submits that Modell is not limited to a specific upper pressure limitation (Final rejection, page 3) and that the specific pressures utilized in the claimed method are "not excluded from the teachings of Modell" (Answer, page 5). The examiner concludes that it would have been obvious to one skilled in the art "to modify the method of Modell by utilizing a pressure sufficiently high to increase the solubility of the inorganic salts" (Final Rejection, page 3). The examiner further concludes that it would have been obvious to one skilled in the art that "Modell would have motivated [the artisan] to optimize the reaction conditions including pressure for oxidation of organic materials and subsequent precipitation of inorganic materials", depending on the specific aqueous stream treated and the results desired (Answer, page 4, see also page 5).

Although the examiner is correct in stating that Modell does not specifically teach an upper pressure limitation,³ the disclosure as a whole is directed to pressures of 3200-4200 psia (the corrosion tests run in column 10, lines 32-43, to test the *limits* of the reactor), with examples run at pressures of 3200 to 4000 psia (see Examples 1 through 9). Example 10 of Modell specifically teaches that when the oxidation reaction pressure began to climb to 5200 psi at 547EC. (a temperature and pressure within the claimed values), the "feed, hydroxide, and water flows were shut off. Pressures slowly dropped off as the system was dried with hot nitrogen for an hour and a half." (column 22, lines 27-32). Modell does disclose that higher pressures can be used in the supercritical region (see Figure 4 and column 8, lines 32-49) but in all cases Modell uses pressures below those in the supercritical region (see lines (1) through (4) in Figure 4).

³ See column 3, lines 27-28, where the oxidation is at "a pressure of at least 3200 psia."; column 3, line 45, "high pressures (above 200 atmospheres)"; column 26, line 6, "thus always at least 220 atmospheres."; and claim 1, last two lines.

McHugh discloses that it is well known that "many gases exhibit enhanced solvating power when compressed to conditions above the critical point." (page 1). McHugh also teaches that "operating in the critical region both pressure and temperature can now be used to regulate the density and, therefore, the solvent power of a supercritical fluid" and that it was well within the skill in the art to "fine-tune" the solvent power of a supercritical fluid (page 5). Therefore there would have been a reasonable expectation that raising the pressure of the Modell process would have increased the solubility of the inorganic salts. However, the examiner has failed to establish what motivation or suggestion would have led one of ordinary skill in the art to desire this increased solubility. *In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984) ("The mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification. [Citations omitted]."). The entire disclosure of Modell is directed to the fact that inorganic salts are *insoluble* at supercritical conditions and can thus be easily

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removed by precipitation at reaction [oxidation] conditions
(column 2, lines 38-42; column 4, lines 12-21; column 9, lines
54-59; and column 10, lines 5-8).

As stated by appellants on page 7 of the Brief, no
motivation is provided by Modell to consider conditions which
would enhance the solubility of the inorganics. The examiner,
on this record, has not provided any motivation or suggestion
to make the proposed modification of Modell. For the
foregoing reasons, we determine that the examiner has not
established a *prima facie* case of obviousness. Therefore we
need not reach the issue of the sufficiency of the Whiting
Declaration under 37 CFR § 1.132 executed on Dec. 12, 1994.
In re Geiger, 815 F.2d 686, 688, 2 USPQ2d 1276, 1278 (Fed.
Cir. 1987). Accordingly, the

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examiner's rejection of claims 1-19 and 21-28 under 35 U.S.C. § 103 as unpatentable over Modell is reversed.

OTHER ISSUES

Upon the return of this application to the jurisdiction of the examiner, appellants and the examiner should consider the patentability of the claims under 35 U.S.C. § 102(b) in view of Example 10 of Modell. Although, as discussed above, Modell in this example (column 22) teaches that the oxidation reaction should be shut down in the event of high pressures, **before** the oxidation reaction is shut down the operating conditions have risen to values within the scope of the claimed method, i.e., a temperature of about 547EC. and a pressure of 5200 psi (column 22, lines 22-30). The examiner and appellants should determine if all the limitations of the claims are identically disclosed by this example of Modell, either explicitly or inherently. *In re Schreiber*, 128 F.3d 1473, 1477, 44 USPQ2d 1429, 1431 (Fed. Cir. 1997).

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No time period for taking any subsequent action in
connection with this appeal may be extended under 37 CFR
§ 1.136(a).

REVERSED

JOHN D. SMITH)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
THOMAS A. WALTZ)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
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CAROL A. SPIEGEL)	
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